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ABSTRACT

A description is given of an intensive training program on the use of microcomputers which was implemented in a school district prior to the installation of the computers in the schools. Participants in the training program were elementary and junior high school teachers, and some administrators and secretaries. The format and sequential development of the two-year training program is described and a list is provided of needs that were identified as well as activities that were planned and implemented during the school year. (JD)

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TRAINING: THE KEY INGREDIENT
FOR THE EFFECTIVE USE OF MICROCOMPUTERS

by

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Occasional Paper No. 8

Districts are jumping on the computer bandwagon and buying microcomputers with "gentle" pushes from parents and computer enthusiasts. Some important questions need to be considered before any major purchases are made:

1. How do we want to use microcomputers?
2. What software is available to help us do those things?
3. With the answers to those two questions in mind, what would be the best type of computer to buy?

However, the most important question to ask is: How will our staff members learn to use the microcomputer effectively? As with any new piece of technology there are things to be learned about its operation, care, and most important, its effective uses. Careful short and long range planning by a school district should lead to better use of the technology.

Decisions at the District Level

The Lawrence, Kansas, School District decided that the training of teachers was the key to effective use of microcomputers in the district. During the summer of 1981, a district microcomputer committee met to develop a district philosophy and to determine what equipment to purchase. Since the committee felt it was essential to train as many teachers as possible before computers were placed in the schools, it recommended that the eleven computers purchased be kept together for the first semester in a laboratory for training district personnel.

All certified staff at the elementary and junior high school levels were sent information about computer training, since those were the levels targeted for microcomputer implementation. The exact placement of the computers would be partially determined by whether there was someone in a given building who had received training. Teachers who were interested in the training voluntarily participated in after-school workshops. Besides teachers, a few administrators and secretaries took the training; a total of eighty-one persons were trained over a three-month period.

A team of four trainers was chosen from district personnel to plan, develop, and carry out the staff development program. They represented a cross-section of the target population to be trained, had experience and/or coursework with microcomputers, were experienced classroom teachers,

had successfully conducted workshops previously, and were willing to spend the hours necessary to develop an effective training model. The team included a junior high teacher, an elementary teacher, a consulting teacher for the gifted, and a media consultant who had had experience coordinating staff development for a federal project in the district.

The Initial Training

Charged with helping teachers learn how to use microcomputers effectively in the classroom, the training team decided that there should be two main goals for the staff development program: teachers needed to feel comfortable with the equipment and to be familiar with some of the ways in which computers could serve as an instructional tool for them.

As the trainers began to plan the staff development program, they discussed some of their own experiences in learning how to use a microcomputer. Two main weaknesses emerged: not enough "hands-on" experiences with the computer and what seemed to be poor sequencing and pacing--too much too soon, and the wrong sequence of activities. These were important considerations in the planning. The training team was unable to find appropriate materials to use with teachers so they decided to develop their own and modify them as various needs arose. The group decided that teachers would first be introduced to some simple BASIC programming to help them understand what they were doing when they initialized a diskette and to show them they could have some control over the machine. The trainers also felt that software evaluation should be a part of the training even though the district owned a very limited amount of software.

To accommodate all of the teachers who were in the training, it was offered four times during the fall. The program included nine hours of direct instruction and four to six hours of lab time to evaluate software. Two persons worked at each computer and there was lots of time for "hands-on" experience. Worksheets were used to assist teachers with their activities at the computer and to allow them to pace themselves. Ninety percent of the time was spent at the computer.

The format for the training follows:

<u>TOPIC</u>	<u>ACTIVITY</u>	<u>TIME ALLOTTED</u>
Assessing participant's knowledge	A Pre-Test	20 Minutes
Taking care of computer equipment and diskettes	Lecture and Demonstration	20 Minutes
Understanding the "insides" of a computer	Demonstration	20 Minutes
Getting acquainted with the keyboard	Worksheets and Hands-On Experiences	30 Minutes
Using the main diskette (or system master) accompanying the computer	Worksheets and Hands-On Experiences	45 Minutes
Getting a new diskette ready to use	Demonstration and Task Completion	15 Minutes
Simple BASIC Programming	Demonstration & Worksheets	3 Hours
Uses for the Computer	Lecture & Demonstration	30 Minutes
Evaluating Software	Hands-On Experience/Filling in Evaluation Worksheets	2½ Hours (4-6 hours during lab)
Assessing knowledge gains	A Post-Test	20 Minutes

The post-test primarily showed gains in knowledge. Marked improvement was made by all participants, and, as a result of training, eighty-five percent of the participants have taken on leadership roles in the area of using microcomputers in their respective buildings or department. The other fifteen percent have had less access to computers, feel software for their area is not effective, or have decided that the computer is not for them.

Follow-up Use and Needs

During the spring semester following training, the eleven microcomputers were placed in eleven schools which provided teachers who had participated

in training with an opportunity to try out some of the things they had learned. Two needs arose when the computers were placed in the schools. First, there was a need for more and better software. Second, staff members expressed a need for additional training. Many of those who had already been trained wanted additional training or wanted to refresh their skills and evaluate some of the new software purchased that spring by the district. Also, once the computers were in the schools, many of those who had not participated in the fall training wanted to learn how to use computers.

Since several teachers had indicated an interest in receiving college credit for microcomputer training, the district worked out an agreement with the local university, the University of Kansas, to offer two summer microcomputer courses for the district personnel. Because the computers were district-owned they were consolidated for the summer months in one air-conditioned location which also served as a site for summer school. This enabled the computers to be used both by students in summer school and by teachers participating in training. In addition to the eleven computers purchased in the fall, five more were available from special programs and federal projects, bringing the total to sixteen.

Because one of the original trainers was busy on another project for the summer, three of the original four trainers cooperatively planned and taught the two summer courses with a professor from the University. A survey was sent out to determine how many teachers were interested in what type of course. Based on the information received two courses were planned.

The first summer school course was an introduction to educational microcomputing. Teachers received one hour of credit for the class which met three hours a day for five days. Since over sixty staff members indicated an interest in the course, two sections were offered, one in the morning and one in the afternoon. With sixteen computers available and participants working in pairs, sixty-four teachers were able to take the training.

Since the trainers had found that the interactive materials and worksheets developed for the fall training had been very effective and had provided ample hands-on experience, they wanted to use a similar instructional approach for the summer courses. Having surveyed the commercial market

during the spring, they did not feel there were appropriate texts or workbooks available for meeting teachers' needs in the district. Therefore, the planning sessions led to the development of two handbooks, one for each course. They were called A Byte of the Apple and Let's Get with the Program.

The "Introduction to Microcomputers" course was similar in format to the initial training in the fall. However, it did not include any BASIC programming except what was necessary to prepare a new diskette for use. Instead, the emphasis was on understanding various microcomputer uses and applications and evaluating software. This approach was viable because the district owned more software packages by summer than it had in the fall.

Participants completed three assignments outside of the fifteen hours of coursework: a critique of a magazine article about microcomputers, a set of directions for someone who had never used a computer before, and a project on how they would use one computer in their educational setting. A few of the participants in the course which included librarians, administrators, and counselors had taken the fall training and saw the course as an opportunity for review and further study. The majority, however, were staff who had no experience with computers. Teachers received one hour of credit for the class which met three hours a day for five days.

The focus of the second course was BASIC programming. Participants received two hours of credit and met three hours a day for two weeks. Again, because of high interest, a morning and afternoon session were offered. Since it was a programming course, only one person was assigned to each computer. Thirty-two staff members participated in the second course; many of them had taken the fall training or the first summer course. Participants, who included administrators, teachers, counselors, and librarians, were expected to be able to demonstrate a list of programming competencies and to develop a program that they could use in their educational settings.

The Second Year of Training

New needs and interests began to surface as the district moved into its second year with microcomputers. Each school had at least one microcomputer by the beginning of the second year. All secondary schools had

two or more. As well, one person on staff was designated as part-time "microcomputer coordinator" so staff members had someone to turn to for assistance.

At the beginning of the second school year, the district microcomputer committee distributed a needs assessment to all staff members including both certificated and non-certificated staff. The questionnaire would assist the committee in planning future microcomputer staff development. Those with no interest in microcomputer training were asked not to return the survey. Three hundred and seventy out of a total of six hundred and fifty staff replied.

A variety of needs were identified and the following activities were planned and implemented during the school year:

1. One-hour inservice sessions in the buildings where computers were placed for the first time. These sessions were requested by building administrators and conducted in most cases by the microcomputer coordinator or someone in the building who felt comfortable doing the sessions.
2. Half-day inservice programs for staff members at various buildings to evaluate software and to plan for the effective use of computers in classrooms. The district had become an institutional member of the Minnesota Educational Computing Consortium and many teachers wanted opportunities to evaluate the new software and to discuss its use with other staff members in their building.
3. Initial training sessions for Chapter I reading staff. The coordinator had taken the first summer course and wanted computer training for reading teachers in all the Chapter I schools. Four sessions spread out over several months were held. As new software for reading became available for preview, teachers were encouraged to try it out with students.
4. Half-day sessions for administrators: a beginners' session and a follow-up session for those with previous training. These two sessions were requested by the administrative staff as options for their staff development. Seventy percent of the administrative staff participated.
5. Half-day sessions for secretaries included an introduction to microcomputers and word processing. These sessions were requested by the secretaries as options for the staff development.

6. A week of two-hour sessions for software evaluation was held after school and in the evening. The sessions included: software for elementary use, software for secondary use, an introduction to Logo, non-instructional uses of the computer, and word processing.
7. Ongoing opportunities at the microcomputer office to come in to evaluate software. Staff members could schedule release time or time after school to come into the district media center to evaluate software, to learn how to use the printer, to check out materials, or to get assistance with planning for microcomputer use, both instructional uses as well as management applications.
8. A two-hour course for university credit offered during the second semester.

This course was again cooperatively planned and taught by district personnel and the University of Kansas. It covered many of the same topics as the introductory course from the preceding summer plus a short introduction to BASIC programming. New topics included Logo, word processing, teacher and school utilities, and data management. Since more software was available and the course was offered during the school year, teachers were able actually to try out some of their ideas with students. Allowing class time to discuss issues such as the need for keyboard skills and how to schedule one computer and thirty students was an important part of the course.

At the end of the course the thirty-six participants shared the results of the written projects they were assigned with the rest of the class. Other assignments included a critique of a magazine article done with a word processing program, a software evaluation, and the twelve lab assignments. The main goal of the course was to get the participants comfortable with using a computer and introducing them to the various ways computers can be used as an educational tool. Teacher users in the district were occasionally asked to come into the class to share ideas that were working for them. The evaluations of the course were very positive. The only major objection was the some of the participants had to bring computers

from their buildings each week to the lab so that every two people could have a computer.

The Future

The most recent district needs assessment to determine staff development activities for the 1983-84 school year indicated that one-fourth of the certified staff still wants staff development activities in the area of microcomputers. Sessions presently planned for next year include: an introduction to microcomputers, BASIC programming, advanced BASIC programming, Logo, and opportunities to evaluate software. Many of these sessions are being offered by teachers who have successfully been using computers in their classrooms.

Summary

Microcomputer training in the Lawrence School District has been and will continue to be an evolutionary process as the technology itself improves and changes. In summary, it seems important to share what the district has learned about what constitutes effective microcomputer training from its experience over the last three years:

1. The main goal of the training should be to have the participants feel comfortable and in control of the machines.
2. Since there are varying needs, staff members with similar needs should be grouped together or the district should provide opportunities for separate groups.
3. The training should cover the wide variety of uses of a microcomputer. Staff members see different ways to use computers to assist them in their work.
4. The district should provide training opportunities for groups besides teachers. Support and understanding from administrators, librarians, and support staff can help bring about an effective instructional program.
5. Staff members can learn to effectively use a microcomputer without learning a programming language. Although an introduction to a programming language seems to be helpful in taking away the "mystique" of the machine, recognize that most teachers will not become programmers.

6. An understanding of how to care for the equipment and diskettes can lead to preventive maintenance and lower repair/replacement costs in the future.
7. Issues such as keyboard skills, scheduling computers in classes, and building level and district level planning should be addressed and discussed during training. These issues relate to K-12 curriculum concerns and decisions about software purchases. Elementary and secondary teachers should have opportunities to discuss these kinds of topics during training and to come up with appropriate solutions.
8. The training should provide hands-on experiences and opportunities for individualization when possible.
9. To be effective, the training should be spread out and not presented in a compressed time frame. The content should be broken into component parts and presented in a step-by-step sequence. Participants should be allowed to proceed at their own pace.
10. For initial training, having two persons to a computer can be very helpful and usually less threatening. The shared learning can also be very comforting.
11. Flexibility and adaptability to new needs is essential. A district must grow with the technology as it changes and the needs of the users and potential users change.

Training was a crucial first step before computers were placed in buildings in the Lawrence School District. Training will continue to be a key element in our district's evolution as more and more staff members want to gain skills and as both hardware and software improve.